WHAT IS CLAIMED IS:

1. A mixer circuit comprising:

a differential amplifier circuit having an RF signal input port for receiving an RF signal; and

a double-balanced mixer circuit having a first LO signal input port for receiving an LO signal, a second LO signal input port for receiving an inverted LO signal equal in frequency and amplitude to the LO signal and opposite in phase to the LO signal, a first IF signal output port for outputting an IF signal obtained by mixing the RF signal with the LO signal, and a second IF signal output port for outputting an inverted IF signal equal in frequency and amplitude to the IF signal and opposite in phase to the IF signal, the double-balanced mixer circuit receiving an output signal from the differential amplifier circuit,

the differential amplifier circuit having:

a first transistor having a control portion for receiving the RF signal inputted to the RF signal input port to output an amplified RF signal in response to the RF signal;

a second transistor having a control portion for receiving the inverted RF signal to output an amplified inverted RF signal in response to the inverted RF signal;

a capacitor provided between the control portion of the second transistor and a ground; and

resonating means connected to each of the RF signal input port, the control portion of the first transistor, and the control portion of the second transistor, the resonating means including the capacitor,

the resonating means being provided to reduce a harmonic of the RF signal.

2. The mixer circuit of claim 1, wherein the resonating means is provided such that a frequency of the harmonic of the RF signal becomes a resonance frequency.

3. The mixer circuit of claim 2, wherein the resonating means is provided such

that a frequency of a third harmonic of the RF signal becomes the resonance frequency.

4. The mixer circuit of claim 1, wherein the resonating means further includes a first resistor connected between the capacitor and the control portion of the first transistor.

5. The mixer circuit of claim 3, wherein the resonating means further includes a first inductor connected between the capacitor and the control portion of the first transistor.

6. The mixer circuit of claim 1, wherein

each of the first and second transistors is a bipolar transistor,

each of the respective control portions of the first and second transistors is a base,

the first transistor outputs the amplified RF signal from a collector thereof in response to the RF signal inputted to the base thereof, and

the second transistor outputs the amplified inverted RF signal from a collector thereof in response to the inverted RF signal inputted to the base thereof.

7. The mixer circuit of claim 1, wherein

each of the first and second transistors is a field effect transistor having a gate, a source, and a drain,

each of the respective control portions of the first and second transistors is the gate thereof,

the first transistor outputs the amplified RF signal from the drain thereof in response to the RF signal inputted to the gate thereof, and

the second transistor outputs the amplified inverted RF signal from the drain thereof in response to the inverted RF signal inputted to the gate thereof.

8. The mixer circuit of claim 1, wherein the differential amplifier circuit has:

a first current source connected to the first transistor;

a second current source connected to the second transistor;

a second resistor connected between the first transistor and the first current

source; and

a third resistor connected between the second transistor and the second current source.

9. The mixer circuit of claim 1, wherein the differential amplifier circuit has:

a first current source connected to the first transistor;

a second current source connected to the second transistor;

a second inductor connected between the first transistor and the first current source; and

a third inductor connected between the second transistor and the second current source.

10. The mixer circuit of claim 9, wherein the first and second current sources is the same current source.

11. The mixer circuit of claim 1, wherein the RF signal has a frequency of 0.8 GHz or more.

12. A differential amplifier circuit comprising:

an RF signal input port for receiving an RF signal;

a first transistor having a control portion for receiving the RF signal inputted to the RF signal input port to output an amplified RF signal in response to the RF signal;

a second transistor having a control portion for receiving an inverted RF signal opposite in phase to the RF signal to output an amplified inverted RF signal in response to the inverted RF signal;

a capacitor provided between the control portion of the second transistor and a ground; and

resonating means connected to each of the RF signal input port, the control portion of the first transistor, and the control portion of the second transistor, the resonating

means including the capacitor,

the resonating means being provided to reduce a harmonic of the RF signal.

13. The differential amplifier circuit of claim 12, wherein the resonating means is provided such that a frequency of the harmonic of the RF signal becomes a resonance frequency.

14. The differential amplifier circuit of claim 13, wherein the resonating means is provided such that a frequency of a third harmonic of the RF signal becomes the resonance frequency.

15. The differential amplifier circuit of claim 13, wherein the resonating means further includes a first resistor connected between the capacitor and the control portion of the first transistor.

16. The differential amplifier circuit of claim 13, wherein the resonating means further includes a first inductor connected between the capacitor and the control portion of the first transistor.

17. The differential amplifier circuit of claim 13, wherein

each of the first and second transistors is a bipolar transistor,

each of the respective control portions of the first and second transistors is a base,

the first transistor outputs the amplified RF signal from a collector thereof in response to the RF signal inputted to the base thereof, and

the second transistor outputs the amplified inverted RF signal from a collector thereof in response to the inverted RF signal inputted to the base thereof.

18. The differential amplifier circuit of claim 13, wherein

each of the first and second transistors is a field effect transistor having a gate, a source, and a drain,

each of the respective control portions of the first and second transistors is the

gate thereof,

the first transistor outputs the amplified RF signal from the drain thereof in response to the RF signal inputted to the gate thereof, and

the second transistor outputs the amplified inverted RF signal from the drain thereof in response to the inverted RF signal inputted to the gate thereof.

19. The differential amplifier circuit of claim 13, wherein the differential amplifier circuit has:

a first current source connected to the first transistor;

a second current source connected to the second transistor;

a second resistor connected between the first transistor and the first current source; and

a third resistor connected between the second transistor and the second current source.

20. The differential amplifier circuit of claim 13, wherein the differential amplifier circuit has:

a first current source connected to the first transistor;

a second current source connected to the second transistor;

a second inductor connected between the first transistor and the first current source; and

a third inductor connected between the second transistor and the second current source.

21. The differential amplifier circuit of claim 20, wherein the first and second current sources is the same current source.

22. The differential amplifier circuit of claim 13, wherein the RF signal has a frequency of 0.8 GHz or more.